

## CLAIMS

[0064] What is claimed is:

1. An apparatus comprising:  
a multi-algorithm detector to detect a transmitted signal according to a detection algorithm selected from two or more detection algorithms based on a predetermined selection criterion.
2. The apparatus of claim 1 wherein said detector comprises two or more sub-detectors able to detect said transmitted signal according to said two or more detection algorithms, respectively.
3. The apparatus of claim 2 wherein said detector comprises a controller to control the selection of said detection algorithm according to outputs of said sub-detectors.
4. The apparatus of claim 3 wherein said controller is able to control activation of one or more of said at two or more sub-detectors.
5. The apparatus of claim 4 wherein said controller is able to activate at least some of said two or more sub-detectors substantially simultaneously.
6. The apparatus of claim 4 wherein said controller is able to sequentially activate at least some of said two or more sub-detectors according to a preset sequence.
7. The apparatus of claim 3 wherein said controller comprises a calculator to calculate a quality metric corresponding to one or more of said sub-detectors.
8. The apparatus of claim 7 wherein said quality metric comprises a quality metric selected from the group consisting of a signal to noise ratio, a log likelihood ratio, and a mean square error.
9. The apparatus of claim 7 wherein said controller comprises a max-detector to detect a highest quality metric of two or more quality metrics corresponding to two or more of said sub-detectors, respectively.
10. The apparatus of claim 1 having a power mode of operation, wherein said criterion relates to a preset minimum quality value.
11. The apparatus of claim 1 having a performance mode of operation, wherein said criterion relates to a highest quality metric of two or more quality metrics corresponding to said detection algorithms.

12. The apparatus of claim 1 wherein one or more of said detection algorithms comprises a minimum mean square error algorithm.
13. The apparatus of claim 1 wherein one or more of said detection algorithms comprises a maximal likelihood sequence estimation algorithm.
14. A wireless communications device comprising:
  - a transceiver able to send and receive signals;
  - a multi-algorithm detector to detect a transmitted signal according to a detection algorithm selected from two or more detection algorithms based on a predetermined selection criterion
15. The device of claim 14 wherein said detector comprises two or more sub-detectors able to detect said transmitted signal according to said two or more detection algorithms, respectively.
16. The device of claim 15 wherein said detector comprises a controller to control the selection of said detection algorithm according to outputs of said sub-detectors.
17. The device of claim 16 wherein said controller comprises a calculator to calculate a quality metric corresponding to one or more of said sub-detectors.
18. The device of claim 17 wherein said quality metric comprises a quality metric selected from the group consisting of a signal to noise ratio, a log likelihood ratio, and a mean square error.
19. The device of claim 17 wherein said controller comprises a max-detector to detect a highest quality metric of two or more quality metrics corresponding to two or more of said sub-detectors, respectively.
20. The device of claim 14 having a power mode of operation, wherein said criterion relates to a preset minimum quality value.
21. The device of claim 14 having a performance mode of operation, wherein said criterion relates to a highest quality metric of two or more quality metrics corresponding to said detection algorithms.
22. A method comprising:
  - selecting a signal-detection algorithm from two or more signal-detection algorithms according to a predetermined criterion.
23. The method of claim 22 comprising:

- calculating two or more quality metrics corresponding to said two or more signal-detection algorithms, respectively; and  
selecting from the two or more signal-detection algorithms a signal-detection algorithm corresponding to a highest quality metric of said calculated metrics.
24. The method of claim 22 comprising sequentially calculating according to a predetermined sequence a quality metric corresponding to said two or more signal-detection algorithms, wherein said selected signal-detection algorithm corresponds to a calculated quality metric having a value higher than a preset minimum-quality value.
25. An article comprising a storage medium having stored thereon instructions that, when executed by a processing platform, result in:  
selecting a signal-detection algorithm from two or more signal-detection algorithms according to a predetermined criterion.
26. The article of claim 25 comprising:  
calculating two or more quality metrics corresponding to said two or more signal-detection algorithms, respectively; and  
selecting from the two or more signal-detection algorithms a signal-detection algorithm corresponding to a highest quality metric of said calculated metrics.
27. The method of claim 25 comprising sequentially calculating according to a predetermined sequence a quality metric corresponding to said two or more signal-detection algorithms, wherein said selected signal-detection algorithm corresponds to a calculated quality metric having a value higher than a preset minimum-quality value.
28. A communication system comprising:  
a first communication device to transmit a signal through a communication channel; and  
a second communication device to receive said signal, said second communication device comprising a multi-algorithm detector to detect said transmitted signal according to a detection algorithm selected from two or more detection algorithms based on a predetermined selection criterion.

- 29.The system of claim 28 wherein said detector comprises two or more sub-detectors able to detect said transmitted signal according to said two or more detection algorithms, respectively.
- 30.The system of claim 29 wherein said detector comprises a controller to control the selection of said detection algorithm according to outputs of said sub-detectors.
- 31.The system of claim 30 wherein said controller is able to control activation of one or more of said at two or more sub-detectors.
- 32.The system of claim 30 wherein said controller comprises a calculator to calculate a quality metric corresponding to one or more of said sub-detectors.
- 33.The system of claim 32 wherein said quality metric comprises a quality metric selected from the group consisting of a signal to noise ratio, a log likelihood ratio, and a mean square error.
- 34.The system of claim 32 wherein said controller comprises a max-detector to detect a highest quality metric of two or more quality metrics corresponding to two or more of said sub-detectors, respectively.
- 35.The system of claim 28 wherein one or more of said detection algorithms comprises a minimum mean square error algorithm.
- 36.The system of claim 28 wherein one or more of said detection algorithms comprises a maximal likelihood sequence estimation algorithm.